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## Digital transformation of the HR management system of a manufacturing company

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**Abstract.** In the field of personnel management of enterprises, a modern approach is to organize the digital workspace of employees. However, often the implementation of information systems and digital technologies is carried out in fragments. In this case, local personnel management tasks are being solved, so the effectiveness of their use to achieve the strategic goals of the enterprise remains at a low level. The purpose of the research is to develop a set of digital transformation directions covering the entire personnel management system using the example of a manufacturing company. In forming a comprehensive HR management model, the authors used a systematic approach; the Canvas business model was developed, which allows them to display a vision of the company's current position for making strategically important decisions. Business process modeling was carried out in BPMN notation, and methods for evaluating the commercial effectiveness of projects were used in the analysis of implementation results. The study proposes a set of digital transformation directions covering the entire personnel management system using the example of a manufacturing company. The low efficiency of the fragmented implementation of information systems to achieve the strategic goals of the enterprise is substantiated. These tools allow you to solve only individual local personnel management tasks. The authors have developed a model of the personnel management system of a manufacturing company, proposed possible directions for digitalization of the system, identified the main software elements that will be phased in during the organization of the employee's digital workplace. Further, these changes are considered in the context of the HR Directorate departments. The practical significance of the study lies in identifying the positive effects that will accompany this implementation. The development and addition of new services and systems to the information architecture will form a unified digital ecosystem of the company.

**Keywords:** personnel management system, digitalization directions, digital workplace, personnel electronic document management, ATS systems

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## Цифровая трансформация системы управления персоналом производственной компании

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**Аннотация.** Наиболее современный подход в сфере управления персоналом предприятий — организация цифрового рабочего пространства сотрудников. Однако часто внедрение информационных систем и цифровых технологий осуществляется фрагментарно, решаются отдельные локальные задачи управления персоналом, поэтому эффективность их использования для достижения стратегических целей предприятия остается на низком уровне. Цель исследования — разработать комплекс направлений цифровой трансформации, охватывающих всю систему управления персоналом на примере производственной компании. При формировании комплексной модели управления персоналом использован системный подход, разработана бизнес-модель Canvas, позволяющая отобразить видение текущего положения компании для принятия стратегически важных решений, моделирование бизнес-процессов проводили в нотации BPMN, при анализе результатов внедрения применяли методы оценки коммерческой эффективности проектов. Предложен комплекс направлений цифровой трансформации, охватывающих всю систему управления персоналом на примере производственной компании. Обоснована низкая эффективность для достижения стратегических целей предприятия фрагментарного внедрения информационных систем, решающих отдельные локальные задачи управления персоналом. Разработана модель системы управления персоналом производственной компании, предложены возможные направления цифровизации системы, выделены основные элементы программного обеспечения, которые будут поэтапно внедрены в ходе организации цифрового рабочего места сотрудника. Также эти изменения рассмотрены в разрезе отделов дирекции по персоналу. Практическая значимость исследования заключается в выявлении положительных эффектов, которые будут сопровождать данное внедрение. Развитие и дополнение информационной архитектуры новыми сервисами и системами сформирует единую цифровую экосистему компании.

**Ключевые слова:** система управления персоналом, направления цифровизации, цифровое рабочее место, кадровый электронный документооборот, ATS-системы

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## Introduction

Modern enterprises are compelled to rapidly adapt to the conditions of the digital economy by implementing new information technologies and digital tools to optimize business processes and improve management effectiveness (Anisimov et al, 2020; Anisiforov, Rostova, Balabneva, 2023). One of the key directions of digital transformation is the creation of a digital workplace for employees, which enables the integration of all human resource management functions and provides access to necessary services anytime and from any location. This approach facilitates better interaction among departments, reduces time and financial costs, and increases employee motivation and productivity (Saurenko, Anisimov, Rodionova, 2019; Tebekin et al, 2019).

This **study aims** to develop digital transformation strategies for the human resource management system using a manufacturing company as a case study, which is essential for achieving strategic objectives and strengthening the company's competitive advantages.

## Literature review

To successfully compete in the market and achieve strategic objectives, enterprises must enhance the architecture of their information systems by implementing new digital tools and technologies. These advancements enable the optimization of internal business processes, facilitate the analysis of operational outcomes, and reduce both time and cost expenditures for the organization (Anisimov et al., 2017; Suloeva, Shmeleva, 2022).

In the field of human resource management, one of the most advanced contemporary approaches is the development of a digital workplace for employees. This concept encompasses a set of information technologies and tools that employees use to perform their tasks and access necessary resources. The creation of a digital workplace enables companies to integrate all existing HR-related functions, while

providing employees with access to digital services anytime and anywhere to meet their needs (Falko, Yatsenko, 2019). The transition from a traditional to a digital work environment improves business processes, facilitates interaction among employees located in different regions of the country, and enhances workforce efficiency by accelerating access to essential services (Tsoy, 2020).

With the rapid advancement of technology, new digitalization tools are emerging that not only reduce the number of routine operations and the workload on employees, but also contribute to the development of a comprehensive digital ecosystem within the employee workspace (Shmeleva, Suloeva, 2023). However, in many organizations, the implementation of information systems and digital technologies is carried out in a fragmented manner, addressing only isolated HR management tasks. As a result, the effectiveness of these tools in achieving the enterprise's strategic objectives remains limited (Glukhenkaya, Dubrovskaya, 2013).

In addition, projects are implemented without proper justification and selection of a specific digitalization task, detailed planning and development of the main stages of the project, which can negatively affect their results (Tebekin et al., 2018; Rostova, Shirokova, Usikov, 2020).

In this regard, the aim of the study was to develop a set of digital transformation strategies encompassing the entire human resource management system, using a manufacturing company as a case study.

## Methods

The methodological foundation of this study is based on the works of (Bryukhachev, Sergeeva, 2022), as well as research on the transformation of human resource management systems in the context of digitalization (Aftetunova, 2015; Shcherbakov, 2022), and the development of digital workplaces within organizations (Kozminykh, 2023; Rostova, Shirokova, Shmeleva, 2023). Issues related to the management of digitalization projects and the assurance of information security during their implementation are addressed in publications (Shirokova et al., 2023; Shmeleva, Suloeva, Rostova, 2021).

The object of the study was the manufacturing company “Blago Group”, whose core business is the production of bottled sunflower oil. “Blago Group” has been operating in the market for 30 years and comprises seven production facilities geographically distributed across five regions of Russia. The company employs over 3,000 people.

Figure 1 presents the Business Model Canvas, which provides a visual representation of the company's current position to support strategic decision-making aimed at fostering development and strengthening its competitive market standing.

The analysis of the company's business model reveals that it produces a high-quality natural product using advanced equipment, skilled personnel, and cutting-edge production technologies, which has earned the trust of both partners and customers. However, the analysis also indicates that in order to achieve its strategic objectives, the company must implement new digital tools and technologies. One of the key areas for digitalization is human resource management.

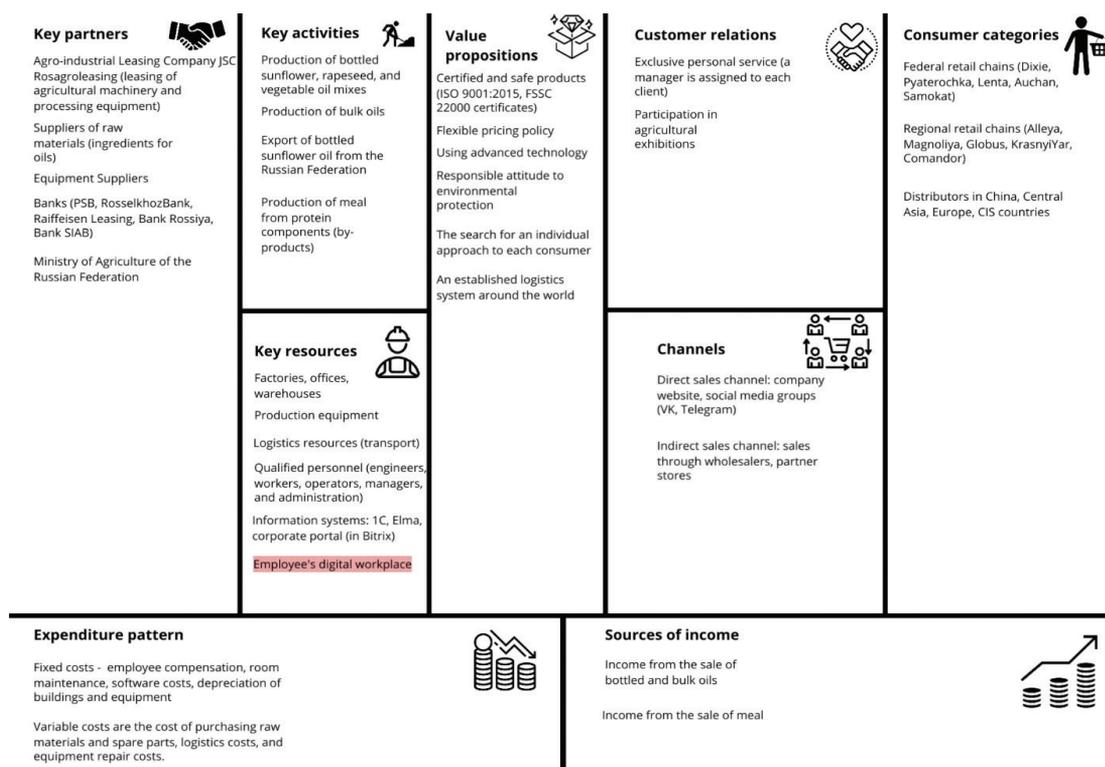


Figure 1. Business Model Canvas

Source: developed by O.V. Rostova, S.V. Shirokova, A.A.M.A. Ragas, A.S. Shmeleva, V.A. Shpagin.

## Results

**Development of the Target Model of the Human Resource Management System.** At the first stage, the objective was to identify, from a systems approach perspective, the key elements of the human resource management (HRM) system, the interconnections between them, and the core functions.

Human resource management is defined as a purposeful activity aimed at providing an organization with highly qualified personnel, ensuring their effective utilization, motivation, and comprehensive development. In other words, the competitiveness of a company in the market depends on how effectively the HRM system is structured.

A management system represents a structured set of tools for controlling a managed object.

The human resource management system within an enterprise is a set of methods and principles that enables the organization to monitor employee activities, improve working conditions, influence staff behavior to achieve strategic goals, and collect data on the current state of affairs.

The HRM system consists of core elements, including: the organizational management structure, functions distributed among personnel, a set

of labor organization methods, the legal and informational framework for HR management, and a set of technical tools and software solutions used to address HR system tasks.

The existing human resource management system within the organization is divided into six areas, each supported by various enabling subsystems:

- information support (regulatory and reference information, databases and database management systems, data warehouses);
- technical support (providing employees with computers/laptops, headsets, microphones, cameras, telephones, as well as equipping offices with printers and scanners);
- methodological support (development and regular updating of official document templates on company letterhead, user manuals for various systems, and methodological guidelines);
- legal support (a range of regulatory documents governing the company's activities at the national level, as well as internal company policies and regulations);
- software support (a variety of information systems required to implement all functions of the hr directorate);
- organizational support (composition and structure of the department, distribution of responsibilities and activities across divisions) (Anisimov, Anisimov, Solokhov, 2017).

To identify potential areas for digitalization, the functions of each department were analyzed:

1. Recruitment and Onboarding Department is responsible for ensuring the company is staffed with employees possessing the required qualifications to meet organizational objectives. Department staff search for suitable candidates, organize phone and in-person interviews with hiring managers, conduct testing and surveys for potential employees, forward candidate data for background checks to the Security Service, and, if all stages are successfully completed, send a job offer. After hiring, the department maintains contact with new employees, holds onboarding meetings, and gathers feedback on job satisfaction<sup>1</sup>.

2. HR Administration Department is in charge of the documentation of labor relations and tracking workforce movement. Its responsibilities include processing hiring, transfers, and terminations; maintaining military registration and timesheets; managing leave, business trips, and sick leaves; preparing employee certificates upon request; and submitting reports to government authorities.

3. Compensation and Performance Management Department is responsible for developing and enhancing the incentive system to stimulate employee productivity. The department manages the staffing schedule, working hours, and shift timetables; determines salary levels; designs bonus systems; provides subsidized meals at company facilities; and offers voluntary health insurance to employees who have passed their probation period.

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<sup>1</sup> Bitrix24. (2025). Digital workplaces: How to automate the work of any department. Retrieved 15.06, 2025 from <https://helpdesk.bitrix24.ru/open/18913896/>

4. Learning and Development Department plans and designs training and competency development programs for employees of various qualification levels. It develops training sessions and events, prepares training materials, organizes internal and external training sessions or e-learning programs, conducts assessment centers through staff testing, and maintains records of the talent pool (Markova et al., 2024).

5. Organizational Design Department is responsible for creating and updating the company’s organizational structure, implementing organizational changes, determining headcount, initiating and managing projects to develop documents detailing the distribution of functions and responsibilities among employees, identifying overlapping or missing functions, and preparing and updating job descriptions.

6. Head of Internal Communications and Employee Engagement is responsible for shaping and developing the corporate culture. This includes informing employees through newsletters, meetings, and information boards; collecting feedback; conducting and analyzing employee engagement surveys; promoting corporate values; developing the employer brand; and organizing various employee-focused initiatives and projects.

Figure 2 presents the target model of the human resource management system, highlighting the key software components that are to be gradually implemented as part of establishing the employee’s digital workplace. These changes are further examined in detail across the departments of the HR Directorate

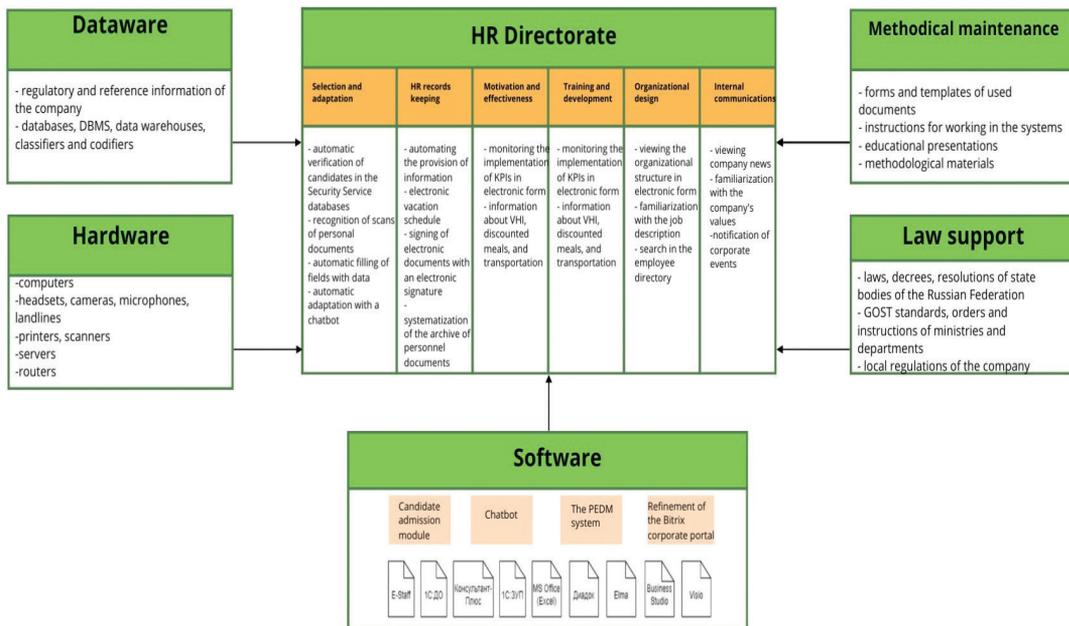


Figure 2. Target Model of the Human Resource Management System

Source: developed by O.V. Rostova, S.V. Shirokova, A.A.M.A. Ragas, A.S. Shmeleva, V.A. Shpagin.

**Development of Digitalization Strategies for the Human Resource Management System.** The main directions for establishing a digital workplace for employees include the following:

1. *Candidate Onboarding Module.* The Recruitment and Onboarding Department can adopt a faster and more efficient candidate approval process, reducing the risk of losing prospective employees to competing offers at the final stages. By implementing an Applicant Tracking System (ATS), referred to as the “Candidate Onboarding Module,” recruiters will be able to automatically verify candidate reliability using the Security Service’s registries. The system will also recognize scanned personal documents and auto-fill relevant fields, eliminating the need for manual data entry by HR staff.

Typically, following final approval, approximately two weeks are required for tasks such as candidate surveys, security checks, offer acceptance, and workplace preparation. During this period, candidates may accept offers from other companies with faster hiring procedures. As a result of the system’s implementation, the hiring process will become more efficient, recruiters will be relieved of routine tasks, and new employee data will be automatically transferred to 1C:ZUP for further processing by the HR Administration Department.

2. *Integration of the ATS System with the BI System.* Since implementing only an ATS system imposes significant limitations in terms of data analytics, a comprehensive solution is proposed. ATS platforms typically lack the capability to perform advanced analytics based on customized criteria and offer a limited range of reporting parameters. This shortcoming can be addressed through the integration of Business Intelligence (BI) platforms, which are capable of generating reports across various indicators and their intersections, as well as producing forecasts based on existing data.

Thus, the implementation of an integrated IT solution would meet all functional requirements in the most effective way for the department. The ATS system not only enables the creation of an extensive candidate database and the automation of many manual tasks — such as parsing resumes from career platforms, handling routine communications, and scheduling technical interviews — but, when properly integrated with a BI system, also provides the ability to monitor recruitment staff performance and track both positive and negative trends. Timely identification and correction of errors in recruiters’ work will help prevent reputational damage and negative feedback about the company within the candidate community.

3. *Development of a Chatbot.* To automate the onboarding process for new employees, an effective tool is the development of a chatbot that, based on predefined algorithms, will collect feedback from newly hired staff and respond to employee inquiries and requests. The chatbot will enable the monitoring of employee satisfaction without requiring in-person visits to the HR Directorate, which is particularly relevant for employees working across different regions of the Russian Federation.

4. *Enhancement of the Corporate Portal.* Enhancing the existing corporate portal will provide employees with comprehensive access to HR-related

information. Within their personal account, employees will be able to download their payslips for a selected period, request necessary certificates, and view scheduled vacations via the electronic vacation calendar maintained by the HR Administration Department. They will also have access to upcoming training courses and programs, as well as materials from completed sessions; monitor their KPI performance; and find detailed information on voluntary medical insurance, subsidized meals, and other benefits managed by the Compensation and Performance Management Department.

Employees will also be able to explore the company's organizational structure, locate colleagues through the employee directory, and review their job descriptions prepared by the Organizational Design Department. Additionally, they will stay informed about the latest company news, upcoming corporate events, and employer branding initiatives published by the Head of Internal Communications and Employee Engagement.

*5. Implementation of an Electronic HR Document Management System.* With the implementation of an electronic HR document management system, the HR Administration Department will be able to eliminate the use of paper documents by transitioning to a digital format. It will also streamline the approval and signing processes for HR documents through the use of electronic signatures and flexible approval workflows.

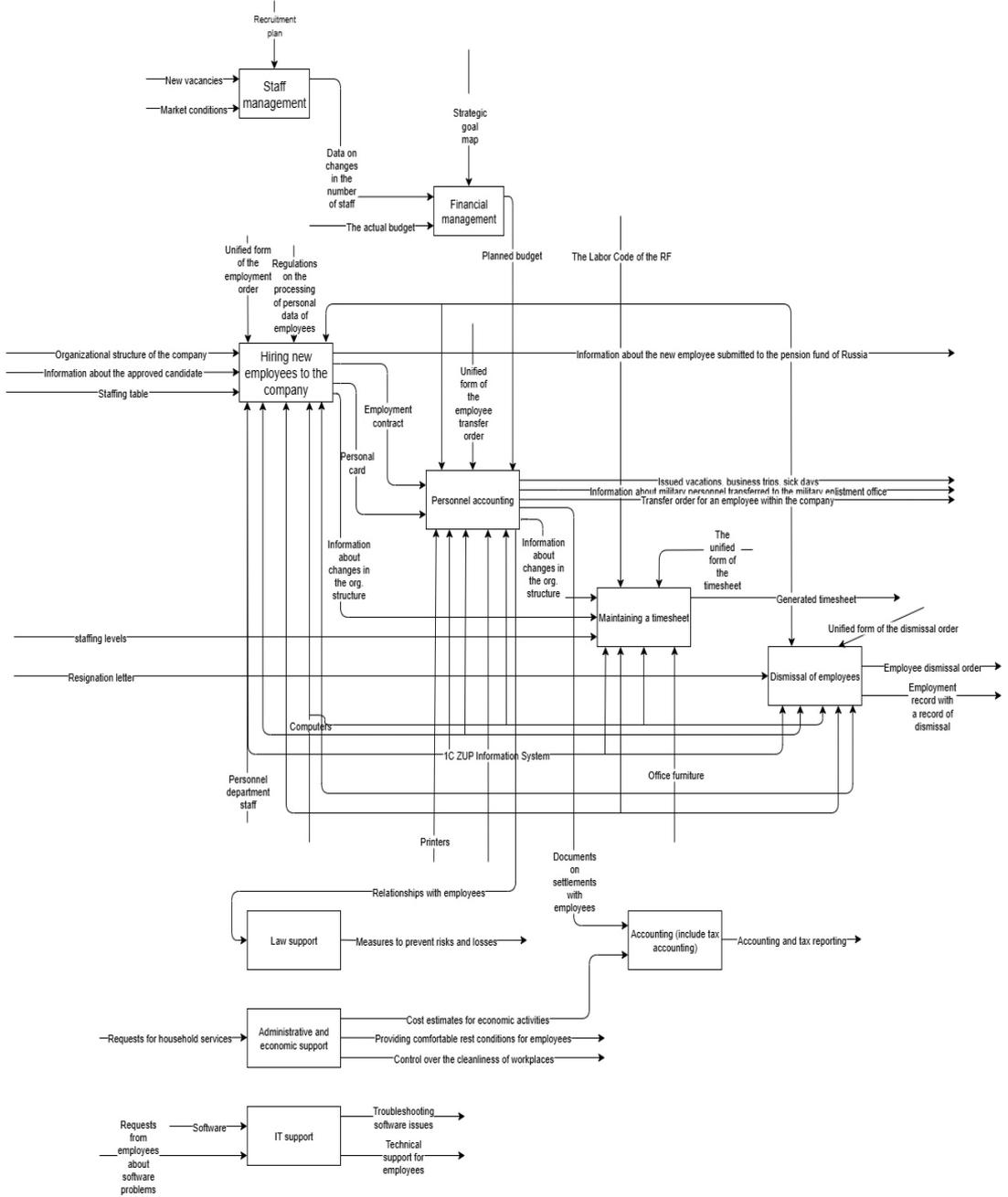
**Development of a Project for the Implementation of an Electronic HR Document Management System.** Next, as an example, the project for implementing an electronic HR document management system is examined. To identify the main issues within the HR Administration Department, a business process model was developed and is presented in Figure 3.

As a result of the analysis, the following problems were identified:

1. Lengthy approval and signing process for hiring documents, resulting in increased time required to onboard a single employee.
2. Due to the growing number of new hires, HR Administration specialists face a shortage of time for manually processing a large volume of paper documents.
3. Risk of errors in document completion caused by the human factor during manual data entry.
4. Difficulties in exchanging documents with employees located in regional offices.
5. Disorganized storage of paper documents, making it difficult to locate necessary records in the archive and increasing the risk of loss.
6. Need for physical storage space for paper documents, along with costs related to consumables and courier services.

To identify stakeholders, strategic goals, and project requirements, a motivation model was developed.

The key stakeholders are the General Director and HR specialists. Their primary drivers include time and cost expenditures, low speed of onboarding new employees, reduced quality in document completion, and a high volume of manual work performed by HR personnel.



**Figure 3.** A0-Level Process Diagram of the HR Administration Department

Source: developed by O.V. Rostova, S.V. Shirokova, A.A.M.A. Ragas, A.S. Shmeleva, V.A. Shpagin.

To ensure that the electronic HR document management system (e-HR DMS) addresses the problems identified in the analysis, a set of requirements was formulated:

1. *Business Requirements.* Reduction of time required for approval and signing of HR documentation; automation of routine operations involving

personal documents of newly hired employees; transparency in tracking document-related operations within the system; systematization of HR document storage in a unified repository; automation of the submission process for requests, certificates, and extracts; simplification of document interactions with employees in regional offices; and reduction of costs associated with HR administrative processes

2. *Functional Requirements.* The system must include search, sorting, and filtering functionalities for quick retrieval of documents within the registry; a user-friendly and intuitive interface; support for issuing electronic signature certificates; the ability to configure flexible approval workflows; tools for tracking the status and progress of document approval and signing; and secure storage of HR documents in designated archival repositories, among other features.

To support informed decision-making, a comparative analysis of electronic HR document management systems available on the market was conducted. As a result, the HR Link system was selected<sup>2</sup>. It enables full automation of HR document workflows thanks to its wide range of functionalities, support for all types of electronic signatures, access from any device with optional notification features, seamless integration with existing corporate systems, and free and prompt technical support.

The main outcomes of implementing the system include:

1. Accelerated document signing using electronic signatures: Unlike paper-based workflows, electronic documents are approved and signed more quickly using UNEP (qualified employee electronic signature) and UKEP (qualified electronic signature by the general director).

2. Centralized document storage: All types of documents are stored in a single repository, enabling employees to quickly locate and access the necessary materials.

3. Ensured security and integrity of HR documentation: Electronic documents are kept within a unified system, minimizing the risk of loss compared to physical storage in multiple locations.

4. Timely receipt of HR documents by employees: All documents (orders, contracts, supplementary agreements) are immediately sent to employees for review and signing as soon as they are generated.

5. Management of employees in regional offices and production facilities: Electronic document workflows enable the onboarding and notification of staff who are unable to sign documents in person.

6. Reduced risk of regulatory penalties: Companies may face fines for late signing of HR documents, but this risk is significantly mitigated through the use of an electronic document management system (EDMS).

The implementation of the EDMS represents the first step toward creating a fully digital workplace for employees. It allows for the integration of the entire

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<sup>2</sup> HR Link : Official website of the HR Link system of 2024. Retrieved 17.05, 2025 from <https://hr-link.ru/>

HR management process into a single digital system, optimizing HR business processes and simplifying operations for both the HR Directorate and employees working across different regions. It is essential not to stop at this stage, but to continue gradually implementing new information systems and digital services to achieve a full-scale digital transformation of the human resource management system in a manufacturing enterprise.

### Conclusion

Thus, the employee's digital workplace implies the integration of existing services with the implementation of new digital systems and technologies. The solutions discussed will assist employees in adapting to the company, interacting with colleagues, accessing up-to-date information, sending and receiving HR documents electronically for approval, submitting inquiries, and tracking their own status and performance — without the need to visit the HR Directorate in person.

Establishing a digital workplace will positively impact not only employee satisfaction with internal processes but also the employer brand, as professionals increasingly prefer to work for modern, forward-looking companies that adopt advanced technologies. The ongoing development and enhancement of the company's information architecture through new services and systems will contribute to the creation of a unified digital ecosystem, ensuring operational efficiency and data security.

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